

Integrated Daylighting Systems

What is this Technology?

DALI enables individual control of fluorescent ballasts using fixture-mounted daylight and occupancy sensors. DALI defines light output for all levels of dimming signals, ensuring consistent dimming performance across multiple dimming ballasts, regardless of type or manufacturer.

Why is GSA Interested?



ENERGY EFFICIENCY DALI enables “daylight harvesting”, which maintains a consistent level of light on work surfaces by actively adjusting the amount of overhead light in response to the amount of daylight available. Case studies have shown energy savings of more than 35% over non-dimming electronic ballasts in perimeter areas. DALI also allows easy integration of different operating strategies, including demand response, further enhancing energy efficiency.



OCCUPANT SATISFACTION Case studies have reported improved occupant satisfaction with the reduced glare provided by dimmable ballasts.



COST EFFECTIVENESS Fully dimmable DALI ballasts are more expensive than conventional ballasts, but in new construction and major renovation, this premium may be offset because the additional cost of the ballasts is offset by reduced switching and installation costs when using fixtures with integrated daylight sensors. The effect of daylight dimming on payback will be evaluated across a range of projects in diverse climates, employing products from multiple vendors.



OPERATIONS & MAINTENANCE There is a learning curve for installing and commissioning the system, but once overcome, the system can aid maintenance because individual ballasts can tell the system when a lamp is out and needs to be replaced. The information provided by the ballast can assist in solving some operator/occupant concerns, and the digital interface allows easy reconfiguration of the lighting system without getting into the ceiling when spaces are rearranged or modified.



APPLICABILITY DALI is a royalty-free, non-proprietary, two-way, open and interoperable digital protocol that provides true interchangeability across ballasts and controls. Multiple manufacturers can be involved in a system, which can result in lower costs, ensure future availability, and enable the system designer to combine product functions and products from different manufacturers. The technology is applicable to retrofit, major renovation, and new construction of commercial facilities, where dimming, occupancy control, or individual user control is needed.

Measurement & Verification

The Green Proving Ground program has commissioned the Lawrence Berkeley National Laboratory to perform measurement and verification (M&V) on integrated daylighting systems at numerous test sites across the country. Findings from that investigation will be available in September 2012.